

E Taller de Arquitectura de Software

Refactorización de Monolito – Encuestas Espagueti

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🔧 FASE 1 – Montaje, Exploración y Pruebas Funcionales

1 Montaje del Entorno

1.1 Clonado del repositorio

Repositorio utilizado:

- <https://github.com/lanvargas94/Semana-2>
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1.2 Construcción y ejecución del entorno

Comando ejecutado:

```
docker compose up --build -d
```

CONSTRUCCIÓN DOCKER COMPOSE

The screenshot shows a terminal window with the title 'C:\Windows\System32\cmd.e'. The log output is as follows:

```
db-1      | 2026-02-18 20:11:58.986 UTC [48] LOG:  database system is shut down
db-1      | done
db-1      | server stopped
db-1      |
db-1      | PostgreSQL init process complete; ready for start up.
db-1
db-1      | 2026-02-18 20:11:59.106 UTC [1] LOG:  starting PostgreSQL 15.12 (Debian 15.12-1.pgdg120+1) on x86_64-pc-linux-gnu, compiled by gcc (Debian 12.2.0-14) 12.2.0, 64-bit
db-1      | 2026-02-18 20:11:59.106 UTC [1] LOG:  listening on IPv4 address "0.0.0.0", port 5432
db-1      | 2026-02-18 20:11:59.106 UTC [1] LOG:  listening on IPv6 address "::", port 5432
db-1      | 2026-02-18 20:11:59.114 UTC [1] LOG:  listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
db-1      | 2026-02-18 20:11:59.123 UTC [66] LOG:  database system was shut down at 2026-02-18 20:11:58 UTC
db-1      | 2026-02-18 20:11:59.132 UTC [1] LOG:  database system is ready to accept connections
backend-1  | 2026-02-18T20:12:00.045Z INFO 1 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8080 (http)
backend-1  | 2026-02-18T20:12:00.063Z INFO 1 --- [           main] o.apache.catalina.core.StandardService  : Starting service [Tomcat]
backend-1  | 2026-02-18T20:12:00.064Z INFO 1 --- [           main] o.apache.catalina.core.StandardEngine  : Starting Servlet engine: [Apache Tomcat/10.1.18]
backend-1  | 2026-02-18T20:12:00.142Z INFO 1 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
backend-1  | 2026-02-18T20:12:00.145Z INFO 1 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 1558 ms
backend-1  | 2026-02-18T20:12:01.102Z INFO 1 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context path ''
backend-1  | 2026-02-18T20:12:01.140Z INFO 1 --- [           main] com.espagueti.controller.Application   : Started Application in 4.064 seconds (process running for 5.072)
```

At the bottom of the terminal window, there are three buttons: 'View in Docker Desktop' (with a Docker icon), 'View Config' (with a gear icon), and 'Enable Watch' (with a play icon).

1.3 Verificación de contenedores activos

Servicios levantados:

⌚ PostgreSQL → Puerto 5432

⌚ Backend Spring Boot → Puerto 8081

⌚ Frontend Angular → Puerto 4200

CONTENEDORES EN EJECUCIÓN

Docker Desktop interface showing the Containers list:

Name	Container ID	Image	Port(s)	CPU (%)	Last started	Actions
proyecto-donaciones	-	-	-	0%	9 days ago	[...]
backend_app	-	-	-	0%	9 days ago	[...]
task-movil-api	-	-	-	0%	2 days ago	[...]
taller_api	-	-	-	0%	4 months ago	[...]
base_de_datos_ii	-	-	-	0%	8 minutes ago	[...]
proyecto-backend	-	-	-	0%	6 months ago	[...]
mini-proyecto	-	-	-	0%	8 minutes ago	[...]
semana-2	-	-	-	0.17%	2 minutes ago	[...]
db-1	d8dd2114ced1	postgres:15	5432:5432	0.03%	2 minutes ago	[...]
backend-1	f1701597e945	semana-2-backend	8081:8080	0.14%	2 minutes ago	[...]
frontend-1	3924d3a69672	semana-2-frontend	4200:80	0%	2 minutes ago	[...]

Showing 11 items

Engine running | RAM 3.33 GB CPU 0.25% Disk: 18.57 GB used (limit 1006.85 GB) | Terminal | New version available

```
C:\Windows\System32\cmd.e Application Context: initialization completed in 1558 ms
backend-1 | 2026-02-18T20:12:01.102Z INFO 1 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context path ''
backend-1 | 2026-02-18T20:12:01.140Z INFO 1 --- [main] com.espagueti.controller.Application : Started Application in 4.064 seconds (process running for 5.072)
db-1 | 2026-02-18 20:16:59.139 UTC [64] LOG: checkpoint starting: time
db-1 | 2026-02-18 20:17:03.515 UTC [64] LOG: checkpoint complete: wrote 46 buffers (0.3%); 0 WAL file(s) added, 0 removed, 0 recycled; write=4.320 s, sync=0.022 s, total=4.376 s; sync files=14, longest=0.010 s, average=0.002 s; distance=260 kB, estimate=260 kB
Gracefully stopping... (press Ctrl+C again to force)
[+] Stopping 3/3
✓ Container semana-2-frontend-1 Stopped 0.5s
✓ Container semana-2-backend-1 Stopped 0.6s
✓ Container semana-2-db-1 Stopped 0.4s
canceled

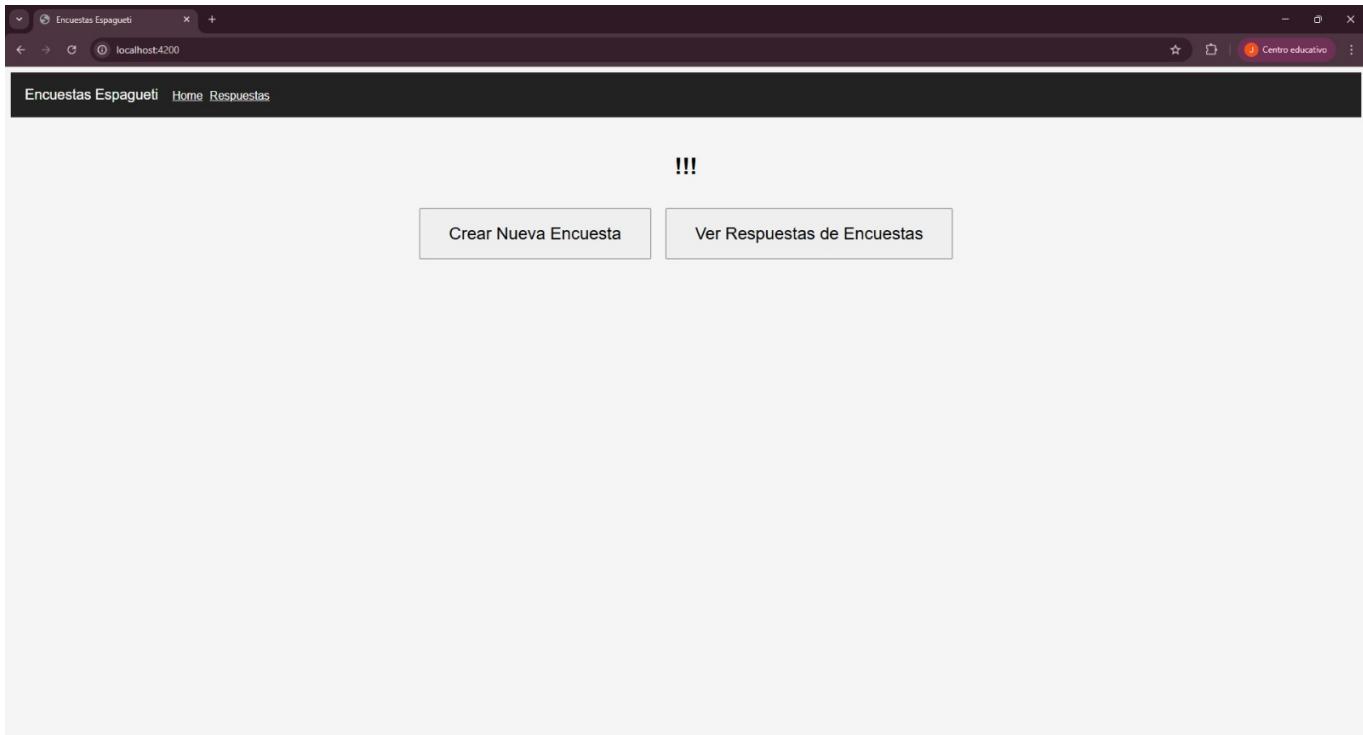
C:\Users\USER\Proyecto_arquitectura_2026A\Semana-2>docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS          NAMES
C:\Users\USER\Proyecto_arquitectura_2026A\Semana-2>docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS          NAMES
ES
3924d3a69672      semana-2-frontend   "/docker-entrypoint..."   17 minutes ago    Up 4 seconds       0.0.0.0:4200->80/tcp   sem
ana-2-frontend-1
f1701597e945       semana-2-backend    "java -jar app.jar"    17 minutes ago    Up 4 seconds       0.0.0.0:8081->8080/tcp   sem
ana-2-backend-1
d8dd2114ced1       postgres:15         "docker-entrypoint.s..."  17 minutes ago    Up 5 seconds       0.0.0.0:5432->5432/tcp   sem
ana-2-db-1

C:\Users\USER\Proyecto_arquitectura_2026A\Semana-2>
```

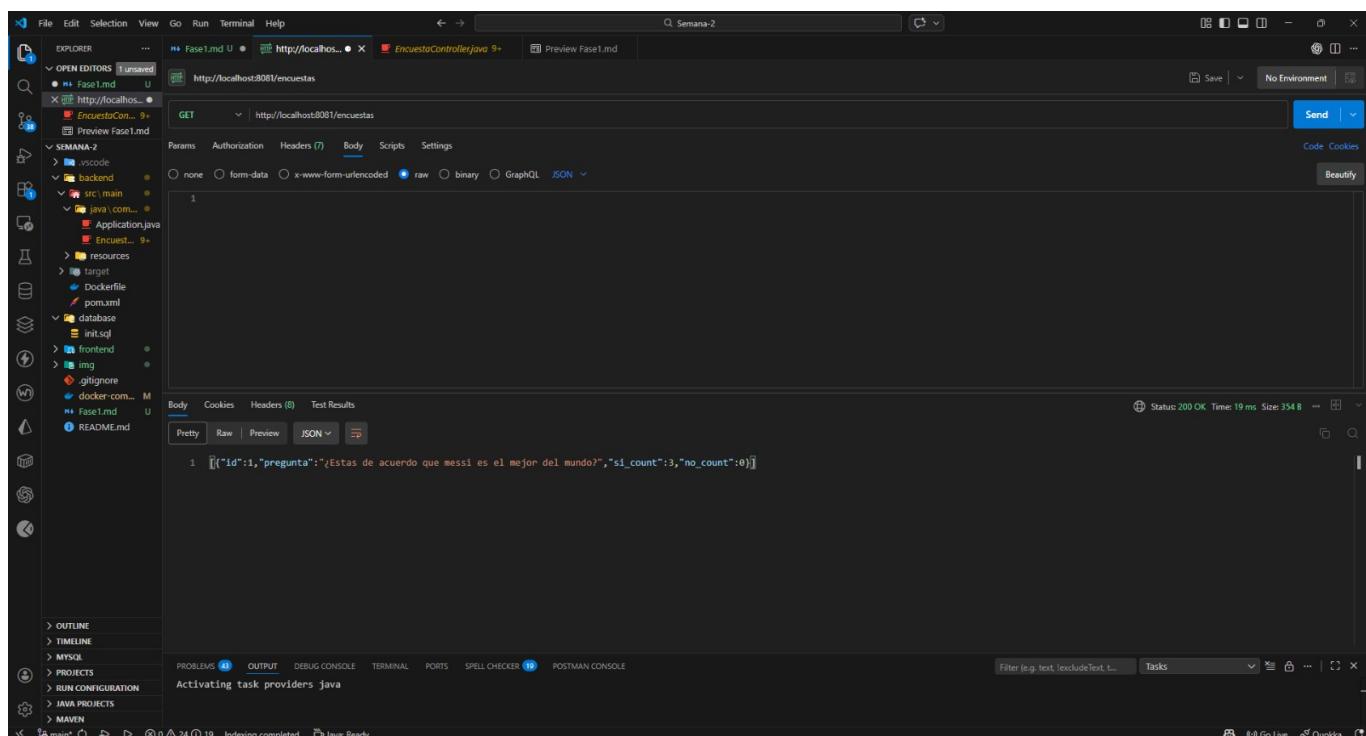
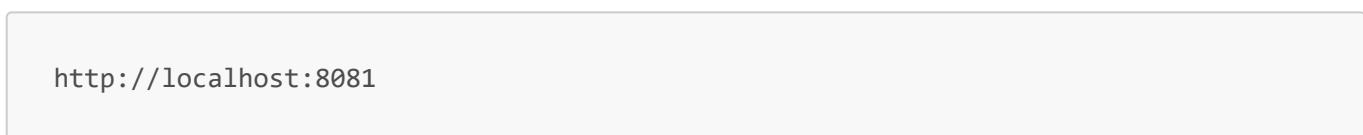
1.4 acceso a la aplicación

Frontend:

<http://localhost:4200>



Backend:



2 Pruebas funcionales

CP-01 CREAR ENCUESTA VALIDA

Encuestas Espagueti Home Respuestas

¿Estas de acuerdo que messi es el mejor del mundo? ???

SI: 3
NO: 0

CP-02 CREAR ENCUESTA CON TEXTO CARACTERES

Encuestas Espagueti Home Respuestas

TEXTO <3 ???

SI: 0
NO: 0

CP-03 VOTAR "SI" EN UNA ENCUESTA

A screenshot of a web browser window titled "Encuestas Espagueti". The address bar shows "localhost:4200/encuesta/4". The page content includes a header with "Encuestas Espagueti", "Home", and "Respuestas". Below this is a section titled "TEXTO <3 ???". It contains two buttons: "SI" and "NO". Underneath the buttons, the text "SI: 1" and "NO: 0" is displayed.

CP-04 VOTAR "NO" EN UNA ENCUESTA

A screenshot of a web browser window titled "Encuestas Espagueti". The address bar shows "localhost:4200/encuesta/4". The page content includes a header with "Encuestas Espagueti", "Home", and "Respuestas". Below this is a section titled "TEXTO <3 ???". It contains two buttons: "SI" and "NO". Underneath the buttons, the text "SI: 1" and "NO: 3" is displayed.

CP-05 LISTAR TODAS LAS ENCUESTAS

The screenshot shows a web browser window titled "Encuestas Espagueti" with the URL "localhost:4200/respuestas". The page displays four survey questions with their respective counts:

- TEXTO <3**
Si: 1 | NO: 3 | Total: 4
[Ver](#)
- <333**
Si: 0 | NO: 0 | Total: 0
[Ver](#)
- texto < 3**
Si: 0 | NO: 0 | Total: 0
[Ver](#)
- ¿Estas de acuerdo que messi es el mejor del mundo?**
Si: 3 | NO: 0 | Total: 3
[Ver](#)

CP-06 Probar SQL Injection (' OR '1'='1)

The screenshot shows a dark-themed IDE interface with two main sections: a top section for API testing and a bottom section for code editing.

Top Section (Postman Requests):

- Request 1:** POST `http://localhost:8081/crear`
Body (raw JSON):

```
1 {
2   "pregunta": "' OR '1'='1"
3 }
```
- Request 2:** GET `http://localhost:8081/encuestas/1%20OR%201=1`
Body (raw JSON):

```
1
```

Bottom Section (Code Editor):

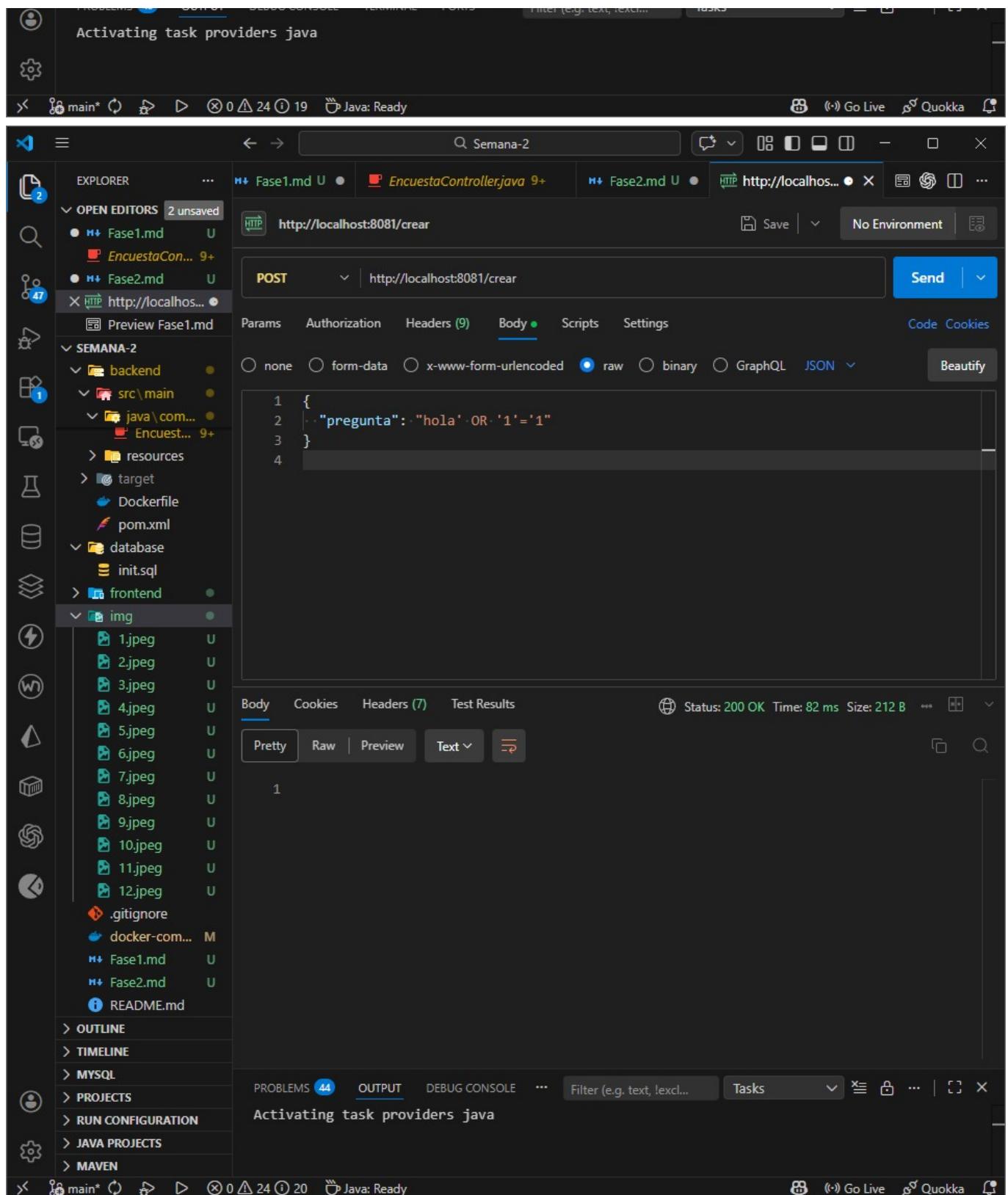
Activating task providers java

```
main.java
```

Output tab: Status: 200 OK Time: 88 ms Size: 212 B

Problems tab: 43

Terminal tab: Java Ready



Se intentó explotar SQL Injection mediante path variable, pero el tipado fuerte de Spring (Integer id) impide que valores no numéricos lleguen a la consulta. Sin embargo, el backend sigue siendo vulnerable debido a concatenación directa de SQL en los endpoints `/crear` y `/votar`.

El endpoint es un INSERT, no un SELECT. En un SELECT, `' OR '1='1` altera la condición WHERE. Pero aquí estás dentro de un VALUES (...), entonces PostgreSQL lo interpreta como string mal formado o como texto literal dependiendo del parsing.

Caso	Descripción	Resultado Esperado	Resultado Obtenido
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Caso	Descripción	Resultado Esperado	Resultado Obtenido
CP-01	Crear encuesta válida	Encuesta creada	✓ Correcto
CP-02	Crear encuesta con texto < 3 caracteres	Mensaje de error mostrado	✗ Incorrecto
CP-03	Votar "SI" en una encuesta	Contador de SI incrementa	✓ Correcto
CP-04	Votar "NO" en una encuesta	Contador de NO incrementa	✓ Correcto
CP-05	Listar todas las encuestas	Lista completa mostrada	✓ Correcto
CP-06	Probar SQL Injection (' OR '1'='1)	Sistema vulnerable	⚠ Vulnerable